



*Gantrex Flash-Butt Welding
Overhead Rail*



Thermite welding in action

A number of different rail welding processes have been used to produce efficient crane runways. Gantrex has the history, experience and capability to field weld using Puddle Arc, Calorite Thermal and Flash-Butt procedures. Below is a short overview of the most common methods:

Puddle Arc - an electro-slag process used more extensively in Europe where it lends itself to the joining of relatively low carbon "A" rails. It is skill dependent, where weld is puddled into the rail gap and retained by "coppers" matched to the rail profile. The "coppers" are individually shaped by the welder to match his own "puddling" technique. Puddle Arc Welding can result in a good joint, but success depends on the skill of the welder. It also creates a larger heat-affected zone than thermal or flash-butt rail welding. Battering can be a problem on higher cycle runways. Larger profiles may take up to 10 hours per weld. Not as commonly used today as the other methods.

Calorite Thermal - a thermal-slag process using a chemical heat source. Rail ends are square cut and sand molds are set on the sides and bottom of the rail. After preheating of the ends, a thermal charge is ignited in a crucible and the molten steel is allowed to flow into the cavity. The rail ends are joined via a casting during the welding process. This weld is good, affords portability and 4-5 welds can be made by a two man crew in a normal shift.

Flash-Butt - technically, the best weld. It produces the smallest heat affected zone, minimizing joint batter, and uses electric current and hydraulic rams to butt the rail ends together at the upset temperature. As many as 4 welds per hour may be possible for overhead runways and 4-6 welds per hour for ground tracks. This system is most effective when the rail is fed from a fixed location and advanced down the runway on rollers. Used on runways where all the rail is replaced.